A.1.1

DEPARTMENT OF ENERGY
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115

February, 1991

Dear Interested Citizen:

You are invited to participate in a workshop to discuss the progress of the Department of Energy's Environmental Restoration and Waste Management Five-Year Plan. The primary purposes of the workshops are for the DOE to explain what cleanup and waste management activities Albuquerque Operations Office is proposing to conduct in fiscal year 1993; to explain how Mound Plant program managers have used new priority systems to categorize the proposed activities; and to offer your opinion about the proposed activities and priorities.

The meeting will be held on February 28, 1991 at the Miamisburg Council Chambers, 10 N. 1st St. at 1:30 p.m. The general public is invited to attend; however, this is not a public hearing. Discussions will be informal and moderated by a meeting facilitator who will ask that your comments be confined to the priority or ranking systems in the areas of environmental cleanup and waste management.

I have enclosed fact sheets and other materials which may be useful in your review of our cleanup and waste management program. In addition, Activity Data Sheets with details of the planned restoration and waste management operations are on display in the DOE Reading Room located at the Miamisburg Branch of the Dayton & Montgomery County Public Library, 35 South Fifth Street, Miamisburg, Ohio. For more information, please call Patrick Higgins, Albuquerque Operations Office at (505)845-5194.

Thank you for your assistance and interest in our program. Public involvement has contributed greatly to the quality of the planning process for this important endeavor.

PATRICK J. HIGGINS, JR., DIRECTOR
ENVIRONMENTAL MANAGEMENT STAFF

428-44

OhioEPA

Fact Sheet

Draft Renewal Permit
Ohio Administrative Code Rule 3745-50-40

Facility Name:	U.S. Dept. of Energy, Miamisburg Environmental Management Project
U.S. EPA I.D. :	OH6 890 008 984
Ohio Permit #:	05-57-0677
Location:	1 Mound Avenue
Facility Owner:	U.S. Dept. of Energy P.O. Box 66 Miamisburg, OH 45343
Facility Operator:	Babcock & Wilcox Technologies of Ohio, Inc. P.O. Box 3030 Miamisburg, OH 45343
Activity Described in Permit Application:	Storage of Hazardous Waste
Comment Period:	Begins: 11/9/01 Ends: 12/23/01

Public Participation Procedures and Comment Period
OAC 3745-50-22 (B)(4)(b)
OAC 3745-50-22 (B)(4)(a)

A public hearing will be held on December 11, 2001, at 7:00 p.m. at Miamisburg Senior Adult Center, 305 Central Avenue, Miamisburg, Ohio 45342, to receive public comments. Oral comments will be received during the public hearing. Written comments may be submitted before the end of the comment period to Ohio EPA, Division of Hazardous Waste Management, Information Technologies and Technical Support Section, P.O. Box 1049, Columbus, Ohio 43216-1049, (614) 644-2980, or via e-mail at dhwmcomments@epa.state.oh.us. All persons, including the applicant, may submit written comments relating to this draft action.

The comment period begins on November 9, 2001, and ends on December 23, 2001. A copy of the permit application and the draft permit is available for review by the public at the following locations:

Miamisburg Senior Adult Center
305 Central Avenue
Miamisburg, OH 45342
(937) 866-8999

Ohio EPA, Southwest District Office
401 E. Fifth Street
Dayton, OH 45402
(937) 285-6357

Ohio EPA, Central Office
Division of Hazardous Waste Management
Lazarus Government Center
122 South Front Street
Columbus, OH 43215
(614) 644-2917

Within sixty (60) days of the close of the public comment period, Ohio EPA will, without prior hearing, issue a renewal permit (or deny the request) in accordance with Chapter 3734 of the Revised Code. If Ohio EPA approves the application, a renewal permit will be issued with terms and conditions as are necessary to ensure compliance with hazardous waste rules.

Description of Facility
OAC 3745-50-22 (B)(1)

The U.S. Department of Energy's (U.S. DOE's) Miamisburg Environmental Management Project (MEMP), formerly known as Mound Laboratory, is a closed facility which made detonators and other components for nuclear weapons.

Description of Requested Permit Renewal
OAC 3745-50-22 (B)(2)

The facility proposes to store waste with every hazardous waste code in two on-site hazardous waste storage units. In reality, very few of the listed waste codes exist at the plant, though on-going cleanup work at the site occasionally turns up small amounts of remnant materials that may be hazardous as a waste. By proposing to manage wastes that for the most part do not exist at the facility, U.S. DOE MEMP can provide legal storage in the event a remnant material is found that requires on-site storage in containers in lieu of off-site treatment and disposal.

Corrective Action Program

The goals of the corrective action program are to evaluate the nature and extent of releases of hazardous substances from facilities, and to develop and implement appropriate corrective measures to protect human health and the environment. U.S. DOE is addressing releases of hazardous substances, including hazardous waste and hazardous waste constituents, from any waste management unit at MEMP and beyond the facility boundary using authority granted to U.S. DOE under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104, to implement removal or remedial actions necessary to protect human health and the environment. U.S. DOE is addressing releases from MEMP in a manner consistent with and in compliance with applicable Ohio law and rules.

The authority for U.S. DOE to implement response actions for releases at the facility or beyond the facility boundary was granted by Executive Order 12580, which gave U.S. DOE the authority to implement response actions for releases at DOE facilities. The authority for U.S. DOE to implement response actions for releases at the facility and beyond the facility boundary is also contained in the Federal Facilities Agreement (FFA), negotiated under CERCLA Section 120 between the U.S. Environmental Protection Agency (USEPA) and U.S. DOE. The State of Ohio became a party to this agreement in 1993.

Regulatory Basis to Support the Decision to Renew the Permit Application
OAC 3745-50-22 (B)(3)

Renewal (on-site)

The director has determined that U.S. DOE MEMP has submitted an application for renewal one hundred eighty (180) days prior to the expiration date of its present permit which was issued by the Hazardous Waste Facility Board on October 18, 1996. The director has considered the application, inspection reports, a report regarding the facility's compliance with the present permit, and the rules adopted under Chapter 3734.05 of the Ohio Revised Code. The director has found that the Part B permit application meets the director's performance standards and that the facility has a history of compliance with this chapter, rules adopted under it, the existing permit, orders entered into, that demonstrates reliability, expertise, and competency to subsequently operate the facility under this chapter, the rules, and the permit.

Contact Person
OAC 3745-50-22 B(5)

For additional information, please contact Chris Cotton at (937) 285-6093.

United States
Department of Energy
Fernald Environmental Management Project

Fernald Area Office
P.O. Box 538705
Cincinnati, Ohio 45253-8705

Fact Sheet for the Proposed Plan for Remedial Actions at Operable Unit 2

Other Waste Units

August 1994

This Fact Sheet Describes:

- The background of the FEMP and Operable Unit 2;
- Summary of Operable Unit 2 risks;
- The cleanup alternatives being considered;
- DOE's preferred remedial alternative;
- How to participate in the selection/modification of the preferred remedial alternative; and
- Where to get more information.

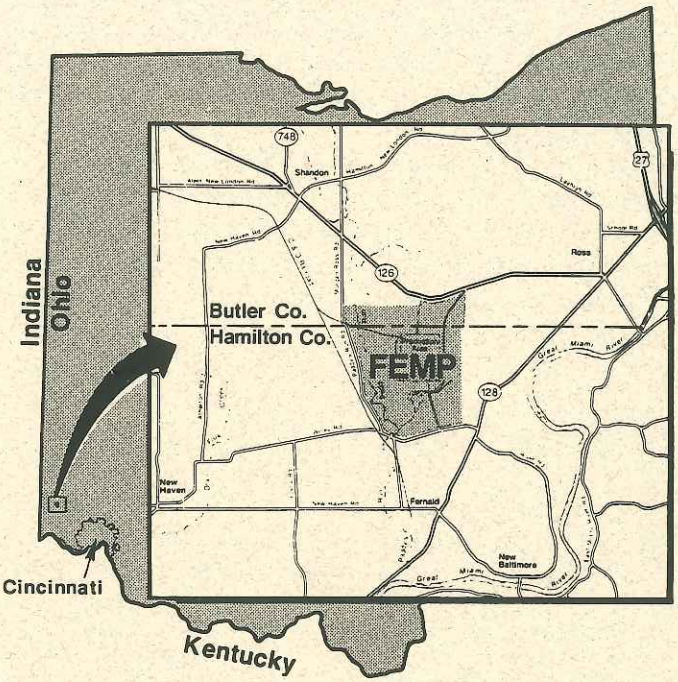
YOU ARE INVITED TO A PUBLIC MEETING

The DOE, together with the U.S. and Ohio Environmental Protection Agencies (EPAs) encourage public involvement in the decision-making process for the remediation of Operable Unit 2 at the FEMP site. Representatives from DOE and U.S. and Ohio EPAs will be present at a formal public meeting to discuss the Operable Unit 2 remedial alternatives, answer questions, and accept public comments. The meeting is scheduled for 7:00 p.m., November 8, 1994, at The Plantation, 9660 Dry Fork Road, Harrison, Ohio.

Public Comment Period

A formal public comment period will be conducted October 26, 1994 through November 25, 1994.

FIGURE 1 - FEMP SITE MAP



INTRODUCTION

This Fact Sheet discusses the U.S. Department of Energy's (DOE's) proposal for the management of contaminated material in the other waste units designated as Operable Unit 2. This Fact Sheet also describes how the public can participate in the selection of, or modification to, the final remedial alternative, and where more information may be obtained. This Fact Sheet is a summary of the Proposed Plan. The Proposed Plan provides additional information which may be important to consider when evaluating the remedial alternatives proposed for Operable Unit 2.

SITE DESCRIPTION

The Fernald site, formerly known as the Feed Materials Production Center, produced high purity uranium metal products for the DOE and its predecessor agencies from 1952 to 1989. Thorium products were also manufactured on a smaller scale and are

stored on site with various uranium materials and process residues. The 1,050-acre site is located in a rural agricultural area about 17 miles northwest of downtown Cincinnati, Ohio.

All production activities at Fernald stopped in July 1989 to enable the site to focus on environmental cleanup and restoration. Congress formally ended the site's 37-year production mission in June 1991. To reflect the site's new mission, DOE changed the name of the facility to the Fernald Environmental Management Project.

The Fernald site was placed on U.S. EPA's National Priorities List in 1989; therefore all remedial actions are being conducted in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments Reauthorization Act (SARA).

DESCRIPTION OF OPERABLE UNIT 2

The FEMP is divided into five separate operable units. Operable Unit 2 consists of the following subunits at the FEMP:

- Solid Waste Landfill
- North and South Lime Sludge Ponds
- Inactive Flyash Pile
- South Field
- Active Flyash Pile

These subunits also include the berms, liners, and soils within the Operable Unit 2 boundary. The location of each subunit is shown on Figure 2.

Solid Waste Landfill

The Solid Waste Landfill was reportedly used for the disposal of cafeteria waste, rubbish, and other types of waste from the nonprocess areas and onsite construction/demolition activities.

Lime Sludge Ponds

The North and South Lime Sludge Ponds contain waste from the FEMP water treatment plant operations, coal pile storm water runoff, and boiler plant blowdown. The South Lime Sludge Pond is inactive and overgrown with grasses and shrubs, while the North Lime Sludge Pond is currently in use.

Inactive Flyash Pile

The Inactive Flyash Pile was used for the disposal of ash from the boiler plant, other nonprocess wastes, and build-

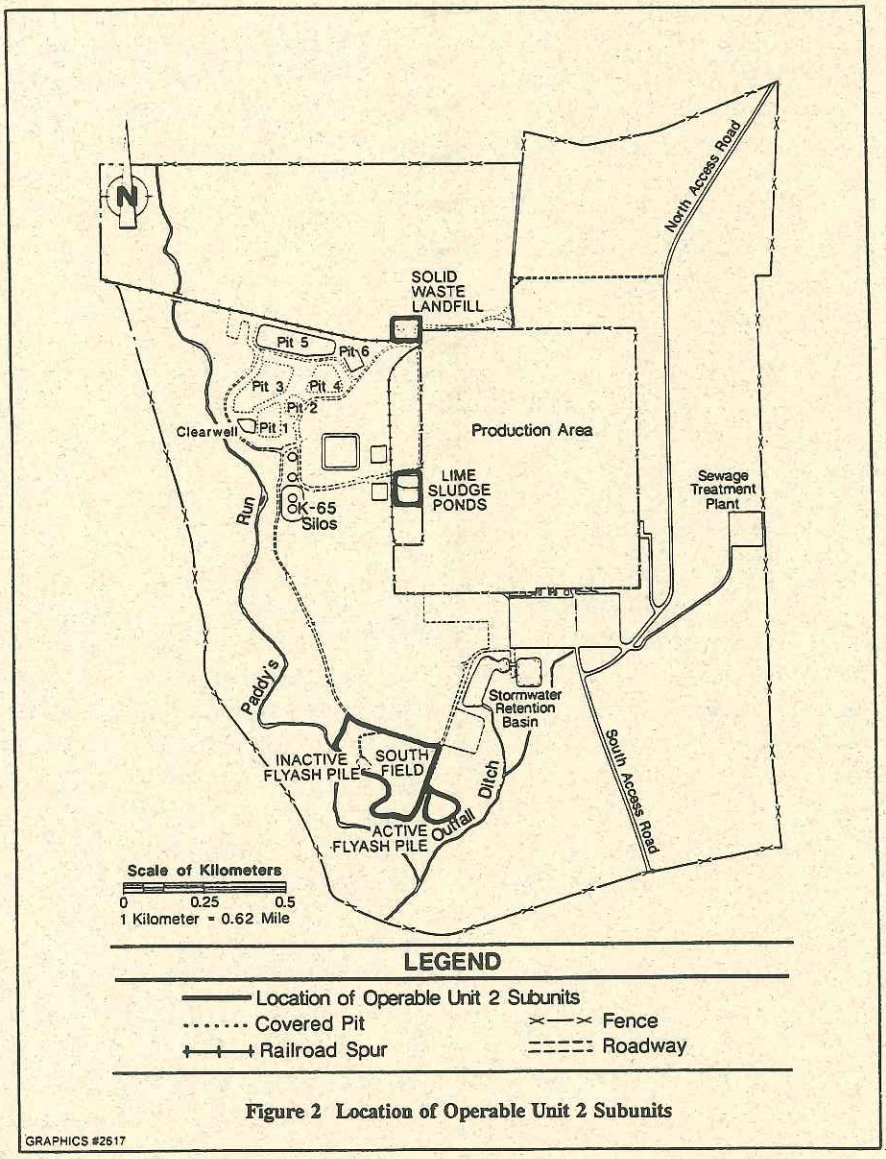


Figure 2 Location of Operable Unit 2 Subunits

GRAPHICS #2517

ing rubble such as concrete, masonry, steel rebar, gravel and asphalt.

South Field
The South Field was reportedly used as a burial site for FEMP nonprocess wastes such as flyash, on-site construction/demolition rubble, and soils that may have contained low levels of radioactivity. A slope at the southwest border of the South Field was used as the backstop for the FEMP security firing range for 35 years. Lead ammunition used during target practice is embedded in this slope.

Active Flyash Pile
The Active Flyash Pile was the disposal area for flyash from the FEMP boiler plant.

The operational histories of the Lime Sludge Ponds and Active Flyash Pile are well understood, but the operational histories of the Solid Waste Landfill, Inactive Flyash Pile, and South Field are not well documented.

SUMMARY OF OPERABLE UNIT 2 RISKS

The chemical and radiological constituents present within the waste and environmental media within Operable Unit 2 present certain risks to human health and the environment. The major contaminants of concern for Operable Unit 2 are uranium, thorium, radium, and arsenic. Statistical evidence indicates that humans have about a one in three chance (33 percent) of developing cancer during their lifetime from all causes. Federal regulations designated to protect human health require that any risk from exposure to non-naturally occurring carcinogenic materials at a waste site not add greater than a one in ten thousand chance (10^{-4}) of developing cancer.

DOE conducted a baseline risk assessment which estimates the risks that could occur in and around Operable Unit 2 if no further cleanup actions are taken. With the assistance of computer models, these risks are evaluated for the situation as it presently exists and for how it could exist up to 1,000 years in the future.

The South Field poses the greatest risk under both current conditions and future scenarios. A hypothetical on-property groundskeeper would have a current cancer risk of 2.2×10^{-4} from the South Field. If, in the future, the FEMP is still under federal ownership, a trespasser has the greatest risk of cancer at 1.4×10^{-4}. If the site becomes privately owned, an on-site resident farmer would have the greatest cancer risk, 3.4×10^{-2}. Because these risk levels exceed the Federal limit of 1×10^{-4}, it is necessary to remediate Operable Unit 2 so that the risk to human health is reduced to allowable limits.

SUMMARY OF REMEDIAL ALTERNATIVES

Eight remedial alternatives were developed to address the risks associated with Operable Unit 2. These alternatives were developed by examining available cleanup technologies and process options that were potentially applicable to the waste materials within Operable Unit 2. These alternatives were screened against the three broad criteria of effectiveness, implementability, and cost. The following four alternatives passed the initial screening process and were carried forward through a more detailed analysis:

Alternative 1 - No Action
As required by EPA, the "no action" alternative is considered as a baseline against which other alternatives can be evaluated because no remedial action would be taken. The material would be left "as is," without the implementation of any containment, removal, treatment, or other mitigating actions. This alternative would not provide monitoring of soil or groundwater, nor would it provide access restrictions or deed restrictions to limit exposure to the waste material.

Alternative 2 - Consolidation and Capping
Alternative 2 includes consolidation within each of the subunits, with subsequent capping of the waste material. Soil containing lead from the South Field Firing Range, which is assumed to be both hazardous and radioactive, would be excavated, treated, packaged, and transported to an off-site facility for disposal.

TABLE 1 - ALTERNATIVE EVALUATION CRITERIA

1. **Overall protection of human health and the environment:** Examines whether a remedy would provide adequate overall protection to human health and the environment. Evaluates how risks would be eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls included in the alternative.
2. **Compliance with applicable or relevant and appropriate requirements (ARARs):** Determines if a remedy would meet all pertinent environmental laws and policy siting requirements.
3. **Long-term effectiveness and permanence:** Evaluates the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.
4. **Reduction of toxicity, mobility, or volume through treatment:** Reviews the anticipated performance of the proposed treatment technologies for their abilities to reduce the hazards of, prevent the movement of, or reduce the quantity of waste materials.
5. **Short-term effectiveness:** Evaluates the ability of a remedy to achieve protection of workers, the public, and the environment during construction and implementation.
6. **Implementability:** Examines the practicality of carrying out a remedy, including the availability of materials and services needed during construction and operation.
7. **Cost:** Reviews both estimated capital and operation and maintenance costs of the remedy. Costs are represented as present worth costs. "Present worth" is defined as the amount of money that, if invested in the first year of implementing a remedy and paid out as needed, would be sufficient to cover all costs associated with the remedy over its planned life. Present worth costs allow remedies that would occur over different time periods to be compared on an even basis.
8. **State acceptance:** Evaluates the technical and administrative issues and concerns the State of Ohio may have regarding each of the alternatives. This criteria will be addressed in the Responsiveness Summary in the Record of Decision.
9. **Community acceptance:** Evaluates the issues and concerns of the public regarding each of the alternatives. This criteria will be addressed in the Responsiveness Summary in the Record of Decision.

Alternative 3 - Excavation and Off-Site Disposal
Alternative 3 includes excavation of all material in Operable Unit 2 with concentrations above the cleanup levels and transporting the material to an off-site disposal facility.

Alternative 6 - Excavation and On-Site Disposal with Off-Site Disposal of Fraction Exceeding Waste Acceptance Criteria
Alternative 6 includes excavation of all material in Operable Unit 2 with concentrations above the clean-up levels. This material would be disposed in an on-site engineered disposal facility constructed of both natural materials, such as clay, and synthetic liners. A small portion of the excavated material may contain concentrations of contaminants that exceed the waste acceptance criteria for the on-site disposal facility. This material and the lead contaminated soil from the South Field Firing Range would be transported to an off-site disposal facility.

EVALUATION OF REMEDIAL ALTERNATIVES

To provide a basis for selecting the preferred remedial alternative, each alternative is evaluated against specific EPA criteria. Table 1 explains each of the nine evaluation criteria. Table 2 presents the results of this evaluation.

SELECTION OF THE PREFERRED REMEDIAL ALTERNATIVE

The preferred remedial alternative for Operable Unit 2 is Alternative 6, *Excavation and On-Site Disposal with Off-Site Disposal of Fraction Exceeding Waste Acceptance Criteria*. This alternative offers an increased effectiveness over Alternative 2, consolidation and capping, and is much more cost effective than off-

site disposal. This is based on an engineered cap that reduces infiltration and a liner that provides leachate collection and leak detection monitoring. By combining all the waste into one disposal location, the preferred remedial alternative also allows increased flexibility in future land use options, a reduced buffer area, and centralized operations and maintenance.

Ohio EPA prohibits siting a new disposal facility over a high-yield, sole-source aquifer, which is the type that underlies the FEMP. This rule was established to protect human health. Through the CERCLA process for Operable Unit 2, it has been found that on-site disposal of Operable Unit 2 material in an engineered disposal facility is protective of human health. Therefore, a waiver is sought from U.S. EPA based on the engineered disposal facility attaining the standard of equivalent performance (i.e., protection of human health).

DOE intends to construct only one disposal facility at the FEMP. Therefore, should on-site disposal be selected for other Fernald operable units, or should future land-use recommendations from the Fernald Citizens Task Force conflict with the Proposed Plan, the disposal facility capacity and location would be adjusted accordingly during the remedial design process.

On the basis of currently available information, the preferred remedial alternative provides the best balance of trade-offs among the alternatives with respect to the evaluation criteria. DOE and EPA believe the preferred remedial alternative would protect human health and the environment to the maximum extent possible.

TABLE 2
COMPARISON OF REMEDIAL ALTERNATIVES

Evaluation Criteria	Alternative 1 No Action	Alternative 2 Consolidation/ Containment	Alternative 3 Off-Site Disposal	Alternative 6 On-Site Disposal
1. Overall Protection of Human Health & Environment	○	●	●	●
2. Compliance with ARARs	○	●	●	●[a]
3. Long-Term Effectiveness and Permanence	○	⊕	●	●
4. Reduction of Toxicity, Mobility, or Volume through Treatment	○	⊕	⊕	⊕
5. Short-Term Effectiveness	●	●	⊕	⊕
6. Implementability	●	●	●	●
7. Total Present Worth Cost (million $)	0	69.6	212.8	110.3
8. State Acceptance	State acceptance will be evaluated after the public comment period.			
9. Community Acceptance	Community acceptance will be assessed after the public comment period and will be addressed in the Responsiveness Summary of the Record of Decision.			

● = Meets and exceeds criteria ⊕ = Meets criteria ○ = Does not meet criteria

[a]Meets ARARs with a waiver of the OEPA restriction on siting a new disposal facility over a high-yield sole-source aquifer.

COMMUNITY PARTICIPATION

DOE encourages public participation in the selection of the final remedial alternative for Operable Unit 2. Public comments on the preferred remedial alternative or other alternatives will be evaluated and documented in the Record of Decision for Operable Unit 2. Based on public comments or new information, DOE may modify the preferred remedial alternative or select another.

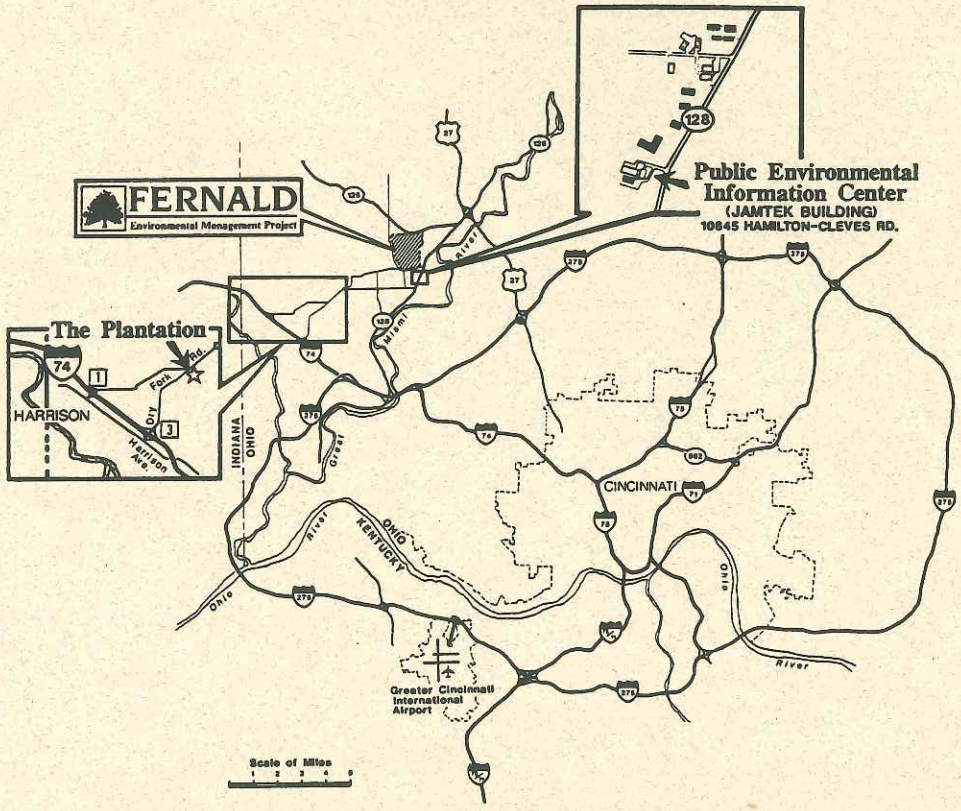
Public Comment Period: DOE will hold a comment period for the Proposed Plan for Remedial Actions at Operable Unit 2 from October 26, 1994 through November 25, 1994. The comment period provides an opportunity for the public to express their views on the remedial alternatives being considered.

Public Meeting: DOE, in coordination with the U.S. and Ohio EPAs, will hold a public meeting during the comment period. The meeting will begin with a discussion of the alternatives and a question and answer period followed by acceptance of written and oral comments. The meeting is scheduled for 7:00 p.m., Tuesday, November 8, 1994 at The Plantation, 9660 Dry Fork Road, Harrison, Ohio.

WHERE TO GO FOR MORE INFORMATION

Information relevant to Operable Unit 2, including the Remedial Investigation Report (including the Baseline Risk Assessment), the Feasibility Study/Proposed Plan-Environmental Assessment, and supporting technical reports, is located in the Administrative Record located both at the Public Environmental Information Center (PEIC) and the U.S. EPA Region V office in Chicago. The local PEIC can be reached at (513) 738-0164 and is open Monday and Thursday 9 a.m. to 8 p.m., Tuesday, Wednesday, and Friday 9 a.m. to 4:30 p.m. and Saturday 9 a.m. to 1 p.m. Figure 3 illustrates the location of the PEIC and The Plantation.

FIGURE 3 - LOCATIONS OF PUBLIC ENVIRONMENTAL INFORMATION CENTER AND PLANTATION



COMMENT SHEET

DOE is interested in your comments on the cleanup alternatives being considered in the *Proposed Plan for Remedial Actions at Operable Unit 2*, including the preferred alternative to excavate and dispose Operable Unit 2 material on-site with off-site disposal of the fraction that exceeds waste acceptance criteria. Please use the space provided below to write your comments, then fold, staple or tape, and mail this form. We must receive your comments on or before the close of the public comment period on November 25, 1994. If you have questions about the comment period, please contact Gary Stegner, the DOE Director of Public Information at Fernald, at (513) 648-3153.

Name:_____

Address:_____

City:_____ **State/Zip:**_____

Phone:_____

MAILING LIST ADDITIONS:

Please add my name to the Fernald Mailing List to receive additional information on the cleanup progress at the Fernald Environmental Management Project:

YES____ **NO**____

For More Information

Additional information or related cleanup documents are available to the public at the following location:

PUBLIC ENVIRONMENTAL INFORMATION CENTER
JAMTEK Building
10845 Hamilton-Cleves Highway
Harrison, Ohio 45030
(513) 738-0164 or 0165

fold here

fold here

Name_____

Address_____

_____

Place Stamp Here

Mr. Gary Stegner, Director
Public Information
Fernald Area Office
U.S. Department of Energy
P.O. Box 538705
Cincinnati, Ohio 45253-8705

PUBLIC NOTICE

Montgomery County

OHIO EPA ISSUES DRAFT RENEWAL HAZARDOUS WASTE PERMIT TO U.S. DEPARTMENT OF ENERGY, MIAMISBURG, OHIO

On November 8, 2001, Ohio EPA issued a draft renewal Hazardous Waste Facility Installation and Operation Permit (Permit) to the U.S. Department of Energy for its Miamisburg Environmental Management Project (MEMP) facility at 1 Mound Avenue, Miamisburg, Ohio 45343. The EPA Identification Number for this facility is OH6890008984.

Why does U.S. Department of Energy need a Permit for its MEMP Facility?

The U.S. Department of Energy (U.S. DOE) MEMP is a closed facility but was engaged primarily in the manufacture of detonators and other components for nuclear weapons. This activity resulted in the generation of various hazardous waste. U.S. DOE stores these hazardous wastes in two on-site storage units. The draft renewal Permit contains the conditions under which the facility must operate if the Permit receives final approval. To issue this draft Permit, Ohio EPA determined that the Permit application is complete and meets appropriate standards and that the applicant has a history of compliance with relevant environmental laws and demonstrates sufficient reliability, expertise and competency to operate a hazardous waste facility under this chapter and Chapters 3704. and 6111. of the Revised Code, all rules and standards adopted under them, and terms and conditions of a hazardous waste facility installation and operation permit, given the potential for harm to the public health and safety and the environment that could result from the irresponsible operation of the facility. When issued, the renewal Permit will allow U.S. DOE to continue storing hazardous waste in containers. It will also require U.S. DOE to investigate and, if necessary, clean up any contamination from hazardous wastes or constituents that may be at the facility.

How can I tell Ohio EPA what I think about this draft Permit?

You can attend the public meeting and present your comments in person or submit written comments that are clear, concise, and well documented. Or, you are welcome to do both. Everyone who wants to comment at the public meeting will be allowed to speak. You should limit your presentation to five minutes and, if possible, submit a written copy of your comments to Ohio EPA at the meeting.

When and where will Ohio EPA hold a Public Meeting?

Ohio EPA will hold a public meeting on December 11, 2001, at 7:00 p.m. It will be at the Miamisburg Senior Adult Center, 305 Central Avenue, Miamisburg, Ohio 45342.

When and how do I submit written comments?

You can submit written comments anytime between November 9, 2001, and December 23, 2001. Send your comments to Ohio EPA, Division of Hazardous Waste Management, Attn: Information Technologies and Technical Support Section, P.O. Box 1049, Columbus, Ohio 43216-1049, telephone number (614) 644-2977, fax number (614) 728-1245, e-mail: dhwmcomments@epa.state.oh.us.

Where can I review the Permit Application and draft renewal Permit?

You can review these at one of the following locations:

Miamisburg Senior Adult Center, 305 Central Avenue, Miamisburg, Ohio 45342 (937) 866-8999,

Ohio EPA Southwest District Office, 401 East Fifth Street, Dayton, Ohio 45402 (937) 285-6357,

Ohio EPA, Division of Hazardous Waste Management, 122 South Front Street, Columbus, Ohio 43215 (614) 644-2917.

What will Ohio EPA do with the comments?

After carefully considering public comments, Ohio EPA will reconsider the draft Permit , making any necessary changes, and issue or deny the final Permit. Ohio EPA will issue a "response to public comments," specifying any changes made to the draft Permit. If you commented on the draft Permit, Ohio EPA will send you a copy of the "response to public comments" and the final permit decision.

PUBLIC NOTICE

Montgomery County

OHIO EPA ISSUES FINAL RENEWAL HAZARDOUS WASTE PERMIT

On March 22, 2002, Ohio EPA issued a final renewal hazardous waste facility installation and operation permit (Hazardous Waste Permit) to U.S. DOE Miamisburg Environmental Management Project (MEMP) for its facility at 1 Mound Avenue, Miamisburg, Ohio 45343. Babcock & Wilcox Technologies of Ohio, Inc., located at the same address, owns the facility. The EPA Identification Number for this facility is OH6890008984.

Why does U.S. DOE MEMP need this permit?

U.S. DOE MEMP is a closed facility but was engaged primarily in the manufacture of detonators and other components for nuclear weapons. This activity resulted in the generation of various hazardous waste. U.S. DOE MEMP stores these hazardous wastes in two on-site storage units. To store this hazardous waste, U.S. DOE MEMP needs a Hazardous Waste Permit. To issue this final Hazardous Waste Permit, Ohio EPA determined that the Hazardous Waste Permit application is complete and meets appropriate standards and that the applicant has a history of compliance with relevant environmental laws, given the potential for harm to the public health and safety and the environment that could result from the irresponsible operation of the facility. The final Hazardous Waste Permit contains the conditions under which the facility must operate. It will allow U.S. DOE MEMP, to continue to store hazardous waste in containers in Buildings 23 and 72. It will also require the company to investigate and, if necessary, clean up any contamination of hazardous waste or constituents from waste management units that may be at the facility.

Can I appeal this permit?

Yes, if you are an officer of an agency of the state or of a political subdivision, acting in a representative capacity, or any person who would be aggrieved or adversely affected by this renewal Permit, you have the right to appeal this permit decision to the Environmental Review Appeals Commission (ERAC).

If I decide to appeal this final renewal Permit, how and when must I make the appeal?

If you file an appeal, you must put it in writing no later than April 20, 2002. Your appeal must explain why you are appealing the action and the grounds you are using for your appeal. You must file your appeal with ERAC at the following address: ***Environmental Review Appeals Commission***, 236 E. Town Street, Room 300, Columbus, Ohio 43215. You must send a copy of the appeal to the director of Ohio EPA at the following address no later than three (3) days after you file it with ERAC: ***Christopher Jones, Director of Ohio EPA***, P.O. Box 1049, Columbus, Ohio 43216-1049.

A.1.4

UNITED STATES DEPARTMENT OF ENERGY
ALBUQUERQUE OPERATIONS OFFICE

MOUND PLANT SITE

Miamisburg, Ohio ***September 1990***

INTRODUCTION

The U.S. Department of Energy (DOE) began conducting comprehensive environmental surveys of its various sites around the country in 1987. These included its manufacturing plants, laboratories, and operations centers. The purpose of these surveys was to insure compliance with all government regulations related to environmental management and to clean up any areas that were out of compliance.

To do this, DOE analyzed the various manufacturing processes and agency activities that occurred at each of its sites, and then began to assess whether the environment had been adversely affected from this work. To determine the nature and extent of the impacts, the surveys looked at all natural resources, including air, water, and soils. Based on these Environmental Surveys and previous work done at the plants, DOE developed an Environmental Restoration and Waste Management Five-Year Plan. The plan was completed in August 1989, and focuses on activities to be implemented through fiscal year 1995.

From this Five-Year Plan, each plant site and operations center developed Site Specific Plans to describe how they would conduct "remedial" or clean up investigations and take care of any environmental problems that are found (See inset on Page 2).

Within DOE, the Albuquerque Operations Office has been given responsibility for coordinating and managing all aspects of this environmental restoration and waste management for all of the installations that comprise the Nuclear Weapons Production Complex. These include nuclear research laboratories, nuclear weapons manufacturing plants, and other installations related to the production and disposal of radioactive wastes.

As part of its management effort, the Albuquerque Operations Office has initiated a public participation program to solicit comments on the Site Specific Plans and assist DOE in its compliance activities. This Fact Sheet provides a summary of the Site Specific Plan for the Mound Plant Site, and describes the types of investigations and clean up activities that have already been completed. It also provides an overview of the environmental work that DOE intends to conduct over the next year. A comment form has been provided in this Fact Sheet to begin the public comment process.

What is in the "Site Specific Plan"?

When DOE began to assess its environmental impacts and map out strategies for achieving compliance, it divided its plan of action into three areas:

1. Environmental Corrective Activities - These involved any actions that were needed to bring air, water, and waste discharges into compliance with prescribed federal or state limits.

2. Environmental Restoration - These were activities aimed at all inactive facilities or sites that had been contaminated with radioactive, hazardous, or mixed (combination of radioactive and hazardous) wastes.

3. Waste Management Operations - These strategies were designed for current operations, and were aimed at minimizing, treating, storing, and disposing of all radioactive, hazardous, mixed, and sanitary wastes generated as a result of DOE's ongoing activities.

DOE also established a separate action plan for efforts to comply with the National Environmental Policy Act (NEPA).

All of the clean up or monitoring strategies that are explained in this fact sheet fall into one of these categories and will be monitored by DOE staff through quality assurance programs developed for each area.

BACKGROUND

Mound began in 1943 as the Dayton Project of the Manhattan Engineer District, a technical organization for determining chemical and metallurgical properties of polonium-210. Since 1946, Mound has been a research, development and production facility that provides support for DOE weapons and energy programs. With an emphasis on explosives and nuclear technology, the main function of Mound is the manufacture of nonnuclear and tritium-containing components for nuclear weapons. The Mound facility is located about ten miles south of Dayton, Ohio within the southern city limits of Miamisburg in Montgomery County.

Operations at the Mound Plant utilizing tritium have historically generated both airborne and liquid waste streams containing tritium. The groundwater in the vicinity of the plant is contaminated with tritium and volatile organic compounds. Several buildings and soil in on- and off-site locations have been contaminated with plutonium. In addition, soil in several on-site locations has been contaminated with thorium.

PAST COMPLIANCE ACTIVITIES

Formal Environmental Restoration activities at Mound were initiated in 1984. Remedial activities to date have focused on decontamination and decommissioning of formerly utilized plutonium processing buildings and plutonium-contaminated soil.

FUTURE COMPLIANCE ACTIVITIES

Corrective Activities - Corrective Activities at Mound consist of two construction projects. The first project involves provision of on-site storage and transport facilities for bulk fuel oil. These facilities include a new 450,000 gallon main storage tank, a new 50,000 gallon storage day tank for the powerhouse boilers, and pumps and piping to transport fuel oil from the main tank to the day tank. Both tanks are vertical with closed-top steel construction and will be surrounded by containment basins to provide secondary spill protection. The piping will be installed above ground.

The second Corrective Activities project involves installation of a new potable water

piping system for the entire site. Approximately 100 buildings at the facility will be connected to this system. The existing piping system will remain in use for process water.

Environmental Restoration - Environmental Restoration activities involve continued assessment of the eight areas of concern at the site. Investigations will be conducted for each of the potential release sites to assess the nature and extent of soil and groundwater impacts. Once information from these investigations is available, Mound will commence studies to evaluate feasible clean up approaches for each area. These Environmental Restoration activities are covered by the recently signed CERCLA 120 agreement with the United States Environmental Protection Agency. In addition, decontamination and decommissioning activities at the facility will continue under the Environmental Restoration program.

Waste Management - Ongoing Waste Management activities focus primarily on the treatment, storage and off-site disposal of low level radioactive wastes, transuranic (TRU) waste (radioactive wastes), low level mixed waste (a combination of hazardous, radioactive and solid wastes), hazardous wastes and non hazardous solid wastes. Mound is also implementing a site-wide waste minimization program. Specific Waste Management activities planned at Mound include: design and construction of an off-site drainage system; testing and replacement of underground storage tanks; and investigations and risk assessments for the plant drainage ditch, fire fighting training facility and waste drum staging area.

PUBLIC COMMENT PERIOD

The Site Specific Plan for the Mound Plant will be updated annually as part of the overall Five-Year Plan. The plan is available for public comment and the Albuquerque Operations Office will accept all public comments on the Mound Plant Site Specific Plan through October 12, 1990. Input from local residents and the general public is important, and DOE is encouraging the public to comment on the plan.

INFORMATION SOURCES

Copies of the Site Specific Plan and other documents related to the Mound Plant are available for review at:

Miamisburg Branch of the
Dayton & Montgomery County
Public Library
35 South Fifth Street
Miamisburg, Ohio 45324

For additional information, please write or call the following key contact:

James A. Morley
U.S. Department of Energy
Mound Plant
P.O. Box 66
Miamisburg, Ohio 45343-0066
(513) 865-3271
or
Patrick Higgins
Environmental Management Staff
U.S. Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115
(505) 845-5194

A pre-addressed Comment Sheet is included in this Fact Sheet. Please take a few minutes to complete and return this form to give us your input on the Mound Plant Site Specific Plan. This form may also be used to include additional names on the mailing list.

James A. Morley
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Mound Plant
P.O. Box 66
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UNITED STATES DEPARTMENT OF ENERGY

TRITIUM RELEASED AT A WEAPONS LAB

During a Secret Experiment in Ohio, Radioactive Gas Accidentally Escapes

NYT 11-9-89

By MATTHEW L. WALD

Workers conducting a secret experiment with a laser beam at a nuclear weapons laboratory near Dayton, Ohio, accidentally shattered a quartz window and released a radioactive gas yesterday morning, the Department of Energy said.

The accident at the Mound Laboratory in Miamisburg, just south of Dayton, released 3.7 grams of tritium, a radioactive form of hydrogen used to increase the explosive power of nuclear bombs, and resulted in the evacuation of 200 people at the 180-acre site, the department said.

Technicians were sent to take water samples downwind of the plant, but no health effects were expected, said Ben E. McCarty, a spokesman for the department. Tritium, like ordinary hydrogen, bonds with oxygen to make water, and in that form can be drunk by humans or absorbed into plants and then eaten.

The size of the dose to the public was not completely clear. Early in the day the department said the maximum dose, to an individual standing at the plant fence at the time of the accident, 8:35 A.M., was 12 millirem, which would be about the same as the amount that the typical American receives each month from natural background sources. But later in the day, the department said the maximum possible dose was only 0.051 millirem.

The chief of staff of the Ohio Emergency Management Agency, James R. Williams, said: "Our initial calculations matched their initial calculations. They may have some other information from later on in the day." Mr. Williams said state investigators would go to the plant tomorrow.

At the Natural Resources Defense Council, a Washington-based environmental group that monitors the weapons complex, Dan W. Reicher, a staff lawyer, said the radioactivity released yesterday appeared to be about seven times the amount released by the complex in all of 1985, the most recent year for which figures are available.

Mr. McCarty, the spokesman for the Department of Energy, said two workers were in the room at the time of the accident but their radiation exposure was not believed to approach the limit set by the Environmental Protection Agency.

Mr. McCarty said the workers were performing an experiment that involved beaming the laser through a quartz window into an enclosure in which the tritium was situated, to cut apart a weld, but the window shattered. Mr. McCarty said he could not disclose any further details, because the experiment is classified.

House Backs State Role In Cleaning Up Oil Spills

By ALLAN R. GOLD
Special to The New York Times

11-9-89

WASHINGTON, Nov. 8 — The House of Representatives voted today to preserve the authority of states to determine how much companies must spend to clean up oil spills. The vote, on an amendment offered by several members, set the stage for passage of comprehensive oil spill legislation that has been debated off and on for 14 years.

The House vote, 279 to 143, came three months after the Senate voted 99 to 0 for an oil spill bill that includes similar protection of states' powers. The House had always opposed letting states set liability for oil spills, favoring instead a uniform Federal standard that would pre-empt state laws. But the Exxon Valdez oil spill in Alaska last March seems to have shifted House thinking on the issue.

Later, to further toughen the bill, the House narrowly passed an amendment that would make oil companies liable for unlimited damages in the event of negligence. The bill had used a standard of gross negligence or willful misconduct. George Miller, a California Democrat and co-sponsor of the state authority amendment, said the negligence standard refers to the failure to act responsibly.

Bush Supports Pre-emption

The Bush Administration has supported Federal pre-emption. A White House spokesman said tonight that the President remains committed to approving oil spill legislation and will address any changes "in the context of the whole bill" when it reaches his desk. The oil companies also favor a Federal standard, contending that a hodge-podge of state laws makes it more difficult to get insurance.

If the overall bill becomes law, oil companies will continue to face not only theoretically unlimited cleanup costs in the event of a spill, but also new Federal rules. The bill calls for a cleanup fund of $1 billion, to be generated by a tax on oil, and more stringent requirements for preventing and responding to spills.

Even in the case of the Exxon Valdez spill, Exxon is expected to spend about $2 billion in all to meet Alaska's cleanup demands. Under Federal liability standards, environmentalists say, the company's costs would have been limited to about $114 million.

The House still has other amendments to consider on the oil spill legislation, but the pre-emption issue has been considered the most contentious. The House is likely to pass the complete bill sometime this week.

Environmentalists and states had vigorously opposed Federal pre-emption of state laws. They contended that it violated states' rights and would benefit polluters. Their allies in the House today said 19 states already have laws with no limits on liability, which means that the parties responsible for an oil spill must pay for all the costs of cleanup.

Oil and shipping companies asserted that a uniform Federal system would permit damage compensation more quickly than the existing "patchwork" of state laws. In addition, they said, unlimited liability laws in the states made insurance more difficult to obtain, leading to experienced companies being driven out of business in favor of less responsible operators.

Lawmakers favoring states' rights on liability standards couched the debate today in terms of the interests of oil companies against the "average citizen."

"The battle lines are drawn," said Representative Gerry E. Studds, a Massachusetts Democrat who was a co-sponsor of the amendment to preserve state authority.

Longstanding State Role

Mr. Studds said there was a longstanding tradition of state environmental authority in Federal laws like the Clean Water Act. He noted that for the last 14 years, the oil industry has faced unlimited liability in many states and "has done just fine."

Representative W. J. (Billy) Tauzin, a Louisiana Democrat and a leading supporter of Federal pre-emption, said the amendment "destroys the comprehensive system" that the bill would have created.

Mr. Tauzin said that under the measure, states would retain many prerogatives, like the ability to maintain their own compensation funds and to tax oil companies to finance them.

The Bush Administration has supported Federal pre-emption because it wants to be able to carry out an international agreement on oil spill liability and compensation. The Senate and House bills raise questions about whether the agreements can be put into effect.

Dke Plain Dealer October 11, 1989

U.S. Energy Dept.'s 'tiger team' tackles Mound Plant study

MIAMISBURG, O. (AP) — Contamination incidents at the Mound Plant will be included in a study by a U.S. Department of Energy "tiger team" that arrived at the nuclear production facility yesterday.

The 35-member team has been charged with a comprehensive study of all of the nation's nuclear production plants. Mound is the fourth facility to be evaluated.

"We're aware of lots of issues," said team leader John Baublitz. "We've been given a lot of information about the conditions at the site."

Baublitz said issues to be studied at Mound included some on-site contamination, some contamination of ground water and the status of a 1969 plutonium spill at a now dried-up canal bed.

"It would not make me at all unhappy if we found nothing new," Baublitz said. "My initial impression is the staff, the contractor and the local DOE folks have been fairly thorough about being on top of issues. They've given us a very open presentation."

Baublitz said the review would be more comprehensive than previous audits of the plant. It will involve reviewing documents, interviewing workers, observing operations and doing some limited environmental testing, he said.

Baublitz said a 24-day-old strike at Mound by 415 workers would have some effect on the review because the team won't be able to observe those employees on the job. He said it wouldn't be a major hurdle.

Baublitz said the review would be more comprehensive than previous audits of the plant.

When the team completes its assessment, it will issue a draft report. EG&G Mound Applied Technologies, operator of the plant, will then prepare a plan to address issues raised in the report.

Detonators used in nuclear weapons as well as nuclear-powered propulsion systems for space vehicles are produced at Mound. About 2,200 employees work at the plant.

Last June, Energy Secretary James Watkins announced the formation of the "tiger teams" in a bid to underscore the department's commitment to the environmental, health and safety aspects of the nuclear operations.

About 100 such evaluations are expected to be completed at DOE sites around the country by the end of 1992. Reviews already have been completed at the Y-12 plant in Oak Ridge, Tenn., the Pantex plant in Amarillo, Texas, and the DOE facility in West Valley, N.Y.

THE PLAIN DEALER, WEDNESDAY, OCTOBER 11, 1989

Residents debate expanding waste site

By PETER GELLER
STAFF WRITER

The waste-disposal needs of several southern suburbs clashed with the complaints of property owners near the Norton Landfill at a hearing last night on whether the waste facility should expand.

"Cities such as North Royalton are treading on very thin financial ice," Mayor Gary D. Skorepa told representatives of the Ohio Environmental Protection Agency at the meeting in Brecksville-Broadview Heights High School. Citing the skyrocketing cost of waste disposal, Skorepa said Norton "has the potential and is developing into the state-of-the-art facility required" by state regulation.

Broadview Heights

He urged the OEPA to approve the 18½-acre expansion, which would extend the life of the 78-acre landfill two to three years.

John Virzi, a Brecksville resident, said, "I've lived here for 20 years, and for 20 years I and other residents have been fighting this landfill."

Expressing frustration that the complaints had failed to halt previous expansions or win relief from odor and other problems, Virzi suggested EPA officials were wasting time by holding the meeting because the permit was going to be issued anyway.

The Norton Construction Co. has been seeking permission to enlarge its waste operation on E. Royalton Rd. in Broadview Heights for nearly two years. OEPA officials asked the company several times to supply additional engineering information on the stability of the slope, the adequacy of the liner material and other concerns.

Satisfied only after four or five submissions by Norton, the agency granted preliminary approval of the expansion Sept. 1. A final decision will be made after officials review last night's comments and any written remarks received by Monday.

Company officials say the expansion would be Norton's last. Without the additional space, the site would have to close in a few months, forcing the nine communities that use the facility to find new waste-disposal arrangements.

Four cities already began making alternative plans after the company announced it would stop taking garbage Aug. 15 from North Royalton, Brecksville, Independence and Maple Heights unless the new acreage was approved by then.

Last night, the mayors of Strongsville and Maple Heights and a spokesman for Berea echoed Skorepa's comments. But Broadview Heights Councilman James Karikas, a staunch opponent of the landfill, which is in his ward, reiterated complaints about odor, noise, dust and other problems. Referring to several prior expansions, Karikas said to applause: "Everything is the last extension. Why do they keep promising this will be the end and it's never the end?"

James W. Cowden, an environmental consultant, raised questions about whether the liner insulating the landfill could sustain pressures that might rupture it, causing pollutants to leach into the soil and ground water.

CAN DOE CLEAN HOUSE AT ITS WEAPONS PLANTS?

By Gregg LaBar

The Department of Energy's (DOE) Nuclear Weapons Complex consists of 15 major government-owned, contractor-operated nuclear weapons facilities, and more than 3,000 smaller facilities and waste sites around the country. Unlike private-sector businesses, such facilities generally need not fear stiff penalties or comprehensive inspections by safety and environmental regulatory agencies (such as OSHA and EPA). Nor, in the past, have these DOE facilities feared public scrutiny. As national security contractors, their activities were shrouded in secrecy.

But, over the past 40 years, say DOE critics, that combination of regulatory immunity and security-inspired secrecy has led to widespread safety, health, and environmental problems in the Nuclear Weapons Complex. The problems range from basic industrial concerns like outdated plumbing and ventilation systems to more high-tech hazards, such as near-meltdowns of nuclear reactors and careless disposal of hazardous, radioactive, and mixed wastes.

"...DOE continues to be among the nation's worst polluters," charges Sen. John Glenn (D-Ohio), chairman of the Senate Committee on Governmental Affairs. "The failure of the DOE to live up to the same environmental laws as the rest of society undermines the fundamental integrity of these laws.... Secrecy, isolation, decentralized management, and self-regulation — artifacts of the Cold War era — have been the biggest contributors to the problem."

According to Glenn, who has introduced legislation that would transfer responsibility for worker safety and health from DOE to OSHA and NIOSH, the Department of Energy has been operating on the theory that "the Russians are coming. Produce! Don't tell the public and dump the wastes in the pits out back. We'll worry about them later."

But "later" may be now, as many of the plants have halted production to focus on the safety and environmental issues. For example, the nuclear reactors at the Savannah River plant (Aiken, S.C.), which produce DOE's only source of tritium for nuclear warheads, have been shut down because of possible structural flaws. At the Feed Materials Production Center (Fernald, Ohio), the production of uranium fuel cells has been halted for much of the past 18 months (first by a strike and now by an emphasis on cleanup), and there is almost no in-or-out movement of wastes.

Meanwhile, DOE and its contractors have had to answer tough questions before Congress, other agencies (including the Federal Bureau of Investigation, which has been investigating possible contract fraud at at least two sites, Rocky

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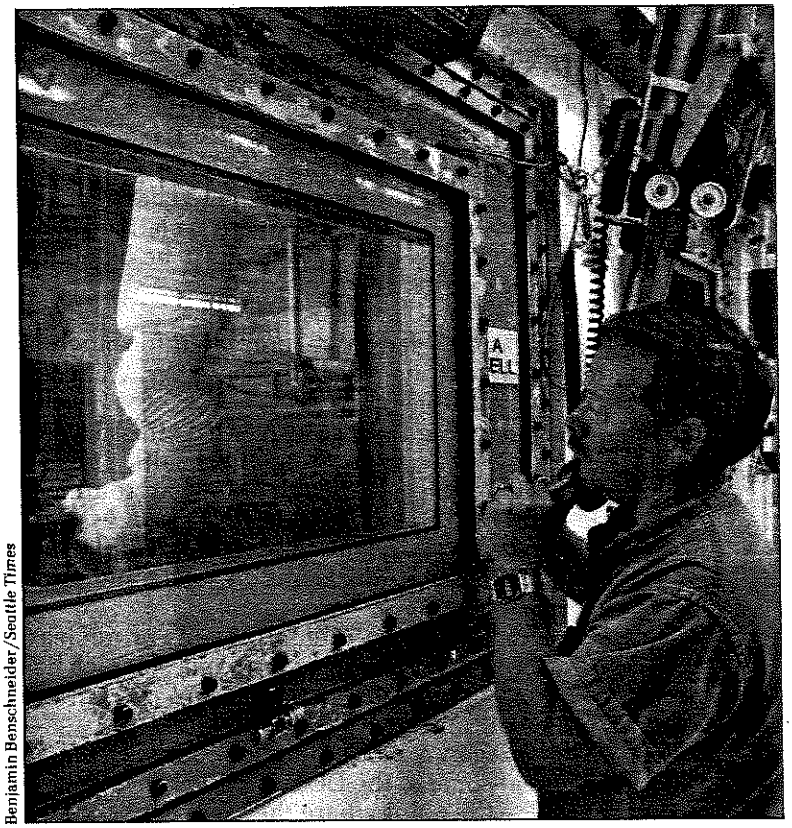
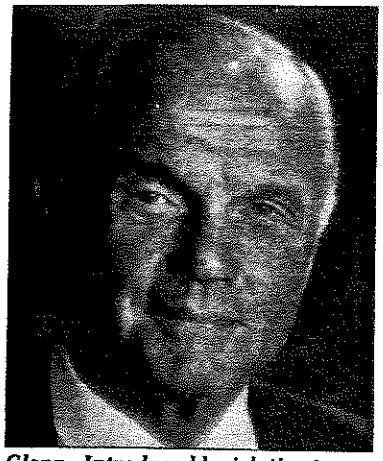


Benjamin Benschneider/Seattle Times

DOE's Nuclear Weapons Complex: After years of putting production first, plants now face intense scrutiny about health and environmental problems.



Glenn: Introduced legislation to shift responsibility for worker safety and health from DOE to OSHA and NIOSH.

Watkins: Asked OSHA for help in investigating sites, but wants to retain safety and health responsibilities in DOE.

Philip Bermingham Photography

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Flats, Colo., and Fernald), and the public. In some cases, this unprecedented exchange of information has led to stunning revelations. The word is out, and everyone seems to be listening.

Revelations

DOE acknowledged recently that for much of the past four decades, the Nuclear Weapons Complex has been:

- Operating in a "culture" that stressed production over worker safety and health and the environment, even though DOE has routinely adopted OSHA and EPA standards;
- Relying on insufficient scientific information in making its decisions on safety and environmental matters;
- Accumulating billions of tons of nuclear, hazardous, and mixed wastes, some of which has migrated off site to become part of the ground water, soil, and air; and
- Foregoing modernization projects for so long that some of the DOE facilities have deteriorated to the point where they will not be useful in the future.

Many of the Complex's facilities were built in the 1940's and 1950's, the iciest period of the Cold War. The Atomic Energy Commission (AEC) was first charged with overseeing the Complex's operations. AEC was followed for a brief time in the 1970's by the Energy Research and Development Association, which was eventually replaced by the Department of Energy. Throughout these administrative changes, the Nuclear Weapons Complex has produced increasingly sophisticated weapons for deployment by the Department of Defense (DOD).

However, in many cases, the plants where the nuclear materials and weapons were produced were not similarly modernized to reflect the nation's evolving interest in safety and environmental issues. In fact, even today, our sources tell us, some buildings have no heating or ventilation systems. Asbestos, a common building material of the early nuclear era, is present in many facilities, often in a dangerously friable state.

The AFL-CIO's Margaret Seminario told a Senate committee holding hearings on the subject that conditions at many DOE facilities pose "a serious threat to safety, health, and the environment." She lamented "antiquated facilities, poor engineering controls, inadequate protective equipment, lack of training, and poor monitoring and medical surveillance."

In producing fuel for nuclear weapons and in manufacturing the weapons themselves, workers have used a variety of hazardous materials, including beryllium, hydrogen sulfide, solvents, and hydrochloric acid. Protections have been inadequate, and workers have not been informed of the hazards, according to some labor representatives.

Where nuclear facilities are rather unique is in the addition of another health and safety concern: radiation, which is prevalent (although unseen) when nuclear fuel materials such as plutonium, uranium, and tritium are being produced and fabricated. Although unsafe exposures have been linked to various diseases including leukemia, our respondents agreed that not enough is known about the hazards of radiation, particularly with respect to the effects on future generations. There is, for example, no known distinguishing disease for radiation (such as is the case with asbestos exposure causing asbestosis and beryllium causing berylliosis). Due to long latency periods and a dearth of information, according to some experts, it may be decades before complete studies on the effects of long-term, noncatastrophic worker exposure to radiation are available.

Former NIOSH Director Dr. Anthony Robbins, testifying on behalf of International Physicians for the Prevention of Nuclear War and Physicians for Social Responsibility, told a Senate committee hearing recently, "For many kinds of radiation, we still use estimates gleaned from the effects of the Hiroshima and Nagasaki atomic bomb explosions. This is quite obviously not a good way to estimate the effects of long-term, low-level radiation exposure — unfortunately, it is the best we currently have."

Dr. Robbins said the lack of information can be traced to the fact that only DOE has had access to exposure data for the estimated 600,000 workers who have been employed at nuclear weapons sites over the years (including the more than 100,000 current workers).

According to the AFL-CIO, the combination of traditional and radiation hazards has resulted in abnormally high rates of cancer and other diseases among former and current nuclear weapons workers. The union cited statistics that showed certain workers from the Rocky Flats plant who were exposed to plutonium have shown an increased risk of such cancers as leukemia, lymphoma, and prostate cancer. "Our

workers face a tragic situation," according to Paul J. Burnsky, president of the AFL-CIO's Metal Trades Department. "Although the pattern is not yet clear because the first cases are relatively few in number, all the facilities may be experiencing what has been found at Rocky Flats."

A change in the air

Recently, the new Secretary of Energy, Retired Navy Adm. James D. Watkins, has acknowledged that the nuclear weapons facilities have long had a production-first philosophy, at the expense of safety and environmental issues.

According to Secretary Watkins, "The underlying operating philosophy and culture of DOE [were] that adequate production of defense nuclear materials and a healthy, safe environment were not compatible objectives. I strongly disagree with this thinking. ...the chickens have finally come home to roost, and years of inattention ... are vividly exposed to public examination, almost daily."

Watkins has promised to "change DOE's culture to reflect clear and open communication," to clean up existing facilities where radioactive and hazardous wastes have been stored unsafely, and to get into full compliance with all applicable health, safety, and environmental regulations. The Secretary is also proposing a comprehensive modernization plan, including phasing out work at as many as four facilities — the Mound weapons production plant near Dayton, Ohio; the Fernald Feed Materials Production Center near Cincinnati, Ohio; the Hanford, Wash., materials production site; and the Rocky Flats weapons production plant.

The keystone of the new DOE initiatives is the Environmental Restoration and Waste Management Five-Year Plan, which Secretary Watkins said commits the department to a "30-year goal" for environmental restoration, including taking such action as developing a national prioritization system for cleanup, supporting the establishment of interagency agreements, releasing for scientific analysis the health records of workers, and establishing applied research and development programs.

According to DOE's "2010 Report," the agency will need $81 billion — $52 billion for modernization and $29 billion for environmental

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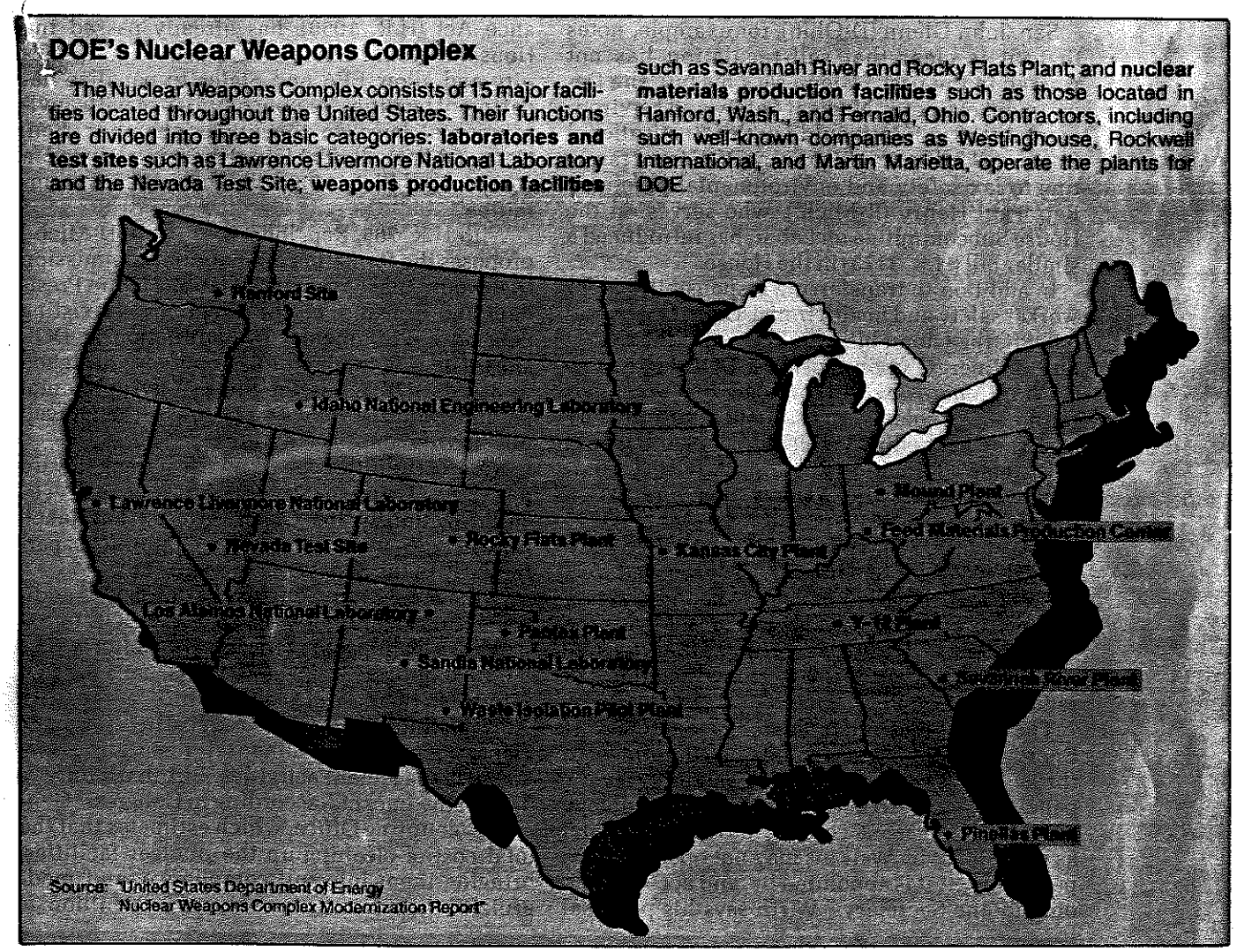

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restoration — to implement a series of 5-year plans over the next two decades. However, the entire process of modernization and cleanup could last much longer and cost in excess of $200 billion, according to some estimates. This would be twice as much as the current public investment in the entire Nuclear Weapons Complex, according to Congress' General Accounting Office, which estimates the Complex's value at $100 billion.

Included in another set of DOE initiatives, Watkins' so-called "10-point plan," is a proposal that at least 51 percent of the award fee (the contract bonus) available to a contractor be based on compliance with safety, health, and environmental requirements. A much smaller percentage, about 20 percent, has been the norm, with the rest based on production, cost control, and quality control considerations, according to Watkins.

The 10-point plan also calls for an increased role for groups outside the traditional DOE structure. For example, Watkins has proposed: negotiations with States that host DOE nuclear facilities for the purpose of planning cleanup efforts; the appointment of an independent medical panel to help restructure DOE's epidemiological program, which he characterized as "understaffed, underfunded, and underutilized"; and the establishment of a comprehensive epidemiological data repository containing information on past and present DOE workers that could be used by any qualified researcher.

In addition, Watkins has established "tiger

CONGRESS TAKES AIM AT DOE REFORM

Despite the Department of Energy's (DOE) announced safety and environmental reforms for its nuclear facilities, some Congressional leaders are calling for new laws to ensure safety and environmental improvements at the DOE plants.

Sen. John Glenn (D-Ohio), for example, notes that "it is clear that self-regulation has not worked in the past." Glenn says his bill, the Department of Energy Nuclear Safety and Environment Act (S. 1304), would lay the "institutional framework" that would prevent DOE from reverting to lax safety and environmental practices. Rep. Paul Henry (R-Mich.), who serves on the House Subcommittee on Labor, has introduced a similar bill (H.R. 3173) in the House.

In addition to transferring responsibilities for worker safety and health from DOE to OSHA and NIOSH, the Glenn bill would require the Secretary of Energy, upon closing a DOE facility, to provide Congress with a complete survey of environmental problems, an estimate of site cleanup costs, and a schedule for cleanup. The bill would also create a Radiation Research Advisory Committee to oversee the work of DOE's radiation health effects research program.

Meanwhile, Sen. Timothy Wirth (D-Colo.) and Rep. Ron Wyden (DOreg.) have proposed versions of the Radiation Research Reorganization Act (S. 972 and H.R. 3212), which would give the Department of Health and Human Services — not DOE — the authority to study the effects of radiation exposure.

The bills are similar to one of Secretary of Energy James D. Watkins' major 10-point plan thrusts — setting up an independent review panel to help restructure DOE's epidemiology program. However, according to Wirth, the panel as envisioned by Watkins may not operate independently "if it is appointed by, and accountable only to, the Secretary." Wirth says his proposal would establish "a truly independent advisory panel," approved by the President with the advice and consent of the Senate.

As for the environmental problems facing the Nuclear Weapons Complex, one bill, Rep. Dennis Eckart's (D-Ohio) Federal Facilities Compliance Act (H.R. 1056), has already passed the House. It would waive DOE's sovereign immunity and allow EPA and States to penalize department facilities for noncompliance with environmental laws. In the upper chamber, Sen. George Mitchell (D-Maine) has introduced a companion bill (S. 1140), which remains in committee.

With H.R. 765, Rep. John D. Dingell (D-Mich.) proposes the formation of a national commission that would make recommendations to the President and Congress on the adequacy of existing data on environmental contamination at DOE sites. The proposed commission is also designed to assist DOE in its long-term environmental planning efforts. As we go to press, the Dingell bill also remains in committee.

None of the bills appears on a fast track toward passage. Congressional sources say reauthorization of the Clean Air Act has taken priority with many of the same committees, particularly in the Senate.

In the meantime, Congress has proposed additional funding for FY 1990 to allow DOE to expand its cleanup and modernization efforts. The FY 1990 budget, as we go to press, calls for $2.4 billion (an increase of $300 million over the Bush Administration's original request) to fund the Department's environmental restoration and waste management activities. But that's only "a drop in the bucket," according to Congress' General Accounting Office, which estimates that the total cost of cleaning up the nuclear facilities, bringing them into full compliance, and modernizing them may be in excess of $200 billion.

teams" to conduct environmental compliance assessments at DOE sites. Their work, which has already begun at some sites, includes reviewing operations and documentation to ensure that the facility is in compliance with environmental law.

As part of the Energy Department's pledge to work closely with other agencies, Watkins recently asked for OSHA's help in investigating "key DOE defense production facilities." In response, Labor Secretary Elizabeth Dole promised that OSHA will "make available experienced compliance officers for inspections of these facilities."

Initially, according to Watkins, OSHA's participation will include joint inspections at three as yet unnamed DOE sites — originally thought by our sources to be the Fernald Feed Materials Production Center in Ohio, the Rocky Flats Plant in Colorado, and the Y-12 Plant in Oak Ridge, Tenn. However, because DOE "tiger teams" have already been to two of those plants (Fernald and Rocky Flats), the joint DOE-OSHA inspections may well focus on other facilities, according to our sources.

Watkins and Dole have stopped short of endorsing the need for providing OSHA with full responsibility for health and safety compliance (such as would be the case under the Glenn bill). According to Watkins, "...the responsibility for the health and safety of DOE workers must be directly assigned to DOE..."

Labor's response

Despite Watkins' initiatives aimed at restoring DOE's credibility, union safety officials remain skeptical. Sylvia Krekel, health and safety coordinator for the Oil, Chemical & Atomic Workers International Union (OCAW), told *Occupational Hazards*, "I'm cynical that the fox can guard the chicken coop. They have had 40 years to run these plants, and they've run them into the ground. The producer cannot regulate. It's too incestuous."

Krekel also questioned DOE's motives for the recent disclosures about safety and environmental hazards. She said increased public scrutiny and the threat of legislative action — but not necessarily a will to do "the right thing" — may be the reasons for the Energy Department's increased interest in safety and the environment. Or, she surmised, DOE's increased interest in safety and environmental issues as well as modernization may merely be a matter of "convenience," given the lesser demand for weapons in this time of lower superpower tensions and disarmament.

The unions, however, have had to be careful in their criticism. Though they have raised questions about working conditions, especially when decontamination and cleanup work is being done, they know that serious concerns about unsafe conditions could result in temporary or permanent facility closings, which could put their members out of work.

"We want the plants upgraded," OCAW's Krekel said. "Obviously, some of these plants are going to be shut down, and we will lose members. But we believe these people have served their country, like in the Armed Services, and they may not be employable elsewhere because of their record of radiation exposure." According to the AFL-CIO's Seminario, high-risk workers may end up being "blacklisted because of their past occupational exposures."

Unions have proposed a "DOE Workers' Agenda" in hopes of helping current and former workers of the Nuclear Weapons Complex. In addition to supporting various independent oversight measures, the agenda calls on Congress to set up a trust fund — the "DOE Worker Superfund," which would protect the workers' standards of living while they further their educations and search for new jobs with comparable earnings.

"They have had 40 years to run these plants, and they've run them into the ground."

Sylvia Krekel
Oil, Chemical & Atomic Workers

Labor groups, along with some public health professionals, have called on DOE to immediately open up its records on radiation exposure and monitoring, and allow for review by independent researchers. This is necessary, Seminario said, because "DOE has made no systematic efforts to notify current and former workers about their risks or to provide them the opportunity for medical surveillance for early detection of disease."

Labor leaders we talked to said the "culture" at DOE will not be easy to change, despite Watkins' strong words. They noted that most of the officials below him at the national level and in the field offices remain the same.

Environmentalists' views

Environmentalists were also cautious in their comments on the DOE plans for administrative changes. "We're definitely hearing much better words than we did before, but we have yet to see whether they will be followed with any action or real change in priorities," according to Jim Werner, project engineer for the National Resources Defense Council (NRDC).

Recalling his experience as an environmental consultant for DOE contractor ICF Technology, Inc., Fairfax, Va., Werner says he is not con-

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vinced that DOE can get its own house in order. He told us he left his job with ICF earlier this year because of "a lot of frustration working for [DOE] ... and feeling as though your work wasn't really going toward cleanup. It wasn't clear that the results of my investigations and recommendations would ever be used."

NRDC and a number of environmental groups have filed lawsuits against DOE, trying to force the agency to "come clean" with its record on the environment. The most recent lawsuit, filed in June, is an attempt to force DOE to prepare for public review a Programmatic Environmental Impact Statement (PEIS), which is required of agencies undertaking "major Federal action." The plaintiffs contend that DOE's cleanup and modernization plans qualify as "major Federal action." The PEIS would differ from current DOE proposals, Werner said, because it would consider alternatives and be open for public review *before* plans are finalized.

Contractors sound off

According to contractor representatives, DOE's recent statements about an emphasis on health and safety represent existing policy, not a radical departure.

For example, Michael E. Mitchell, director of environmental and safety activities for Martin Marietta Energy Systems, Oak Ridge, Tenn., which operates five DOE installations, characterized his company's record on safety and health as "outstanding," and added, "We clearly understand the need for, accept, and feel that we are receiving clear guidance and oversight from DOE, as well as from our own corporation."

"Many of these facilities," according to Dr. William M. Jacobi, vice president of government operations for government contractor Westinghouse Electric Corp., "are old and in need of upgrading and environmental remediation." However, he said, "...in the area of employee safety, the facilities we operate for DOE have an excellent safety record. In fact, many aspects of our safety programs could serve as models for industry as a whole."

But, the fact remains, according to Watkins, DOE has been forced to undertake "extraordinary steps" in hopes of restoring public credibility and improving safety, health, and environmental conditions throughout the Nuclear Weapons Complex. The verdict on the success or failure of proposed administrative controls and possible new legislation may not be known for decades. Indeed, as Secretary Watkins has stated, "much of the burden" for cleanup and other improvements will be passed on to the next generation.□

FERNALD: HAZARDOUS WASTE AND HARBORED FEARS

For 35 years, nuclear materials production kept Fernald open. Then the $5 billion environmental bombshell fell.

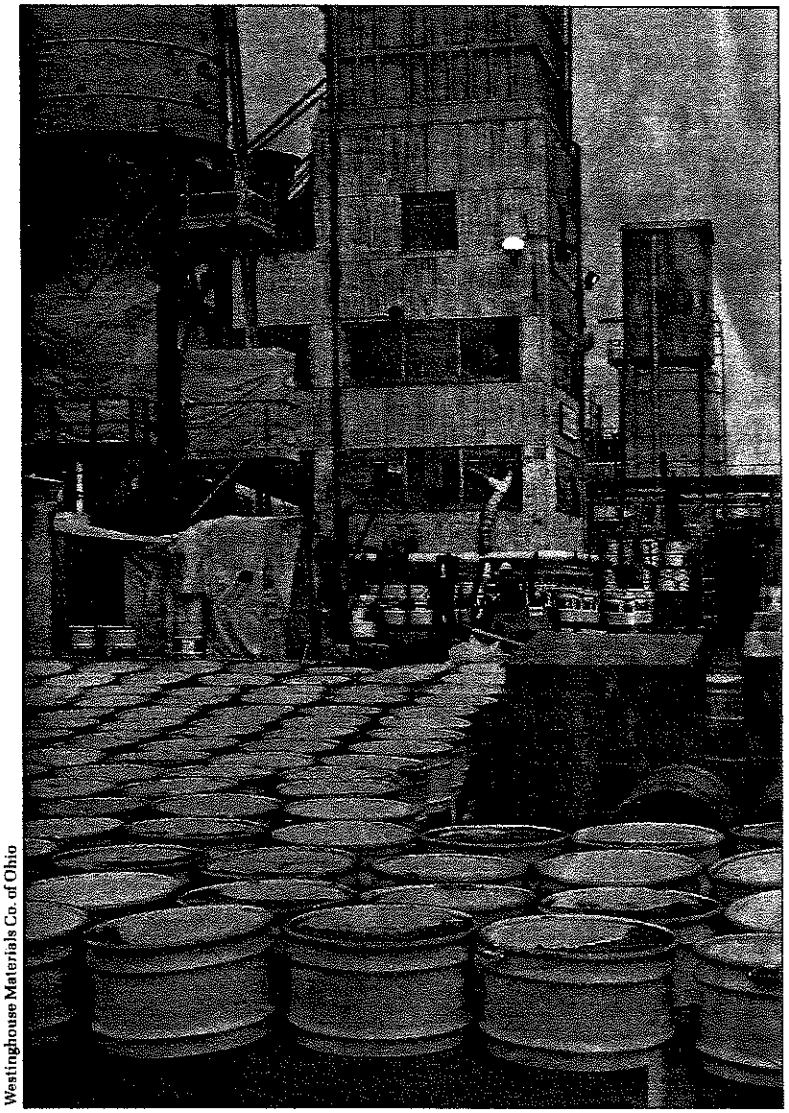
By Gregg LaBar

The Feed Materials Production Center (FMPC) at Fernald, Ohio, may never again turn out uranium metal products for use in nuclear reactors and weapons. The aging facility, with an array of health and environmental problems, is all but dead. Workers and neighbors worry that an early death or serious illness may be their fate as well.

Floyd Grubb, 59, for example, has bone cancer. He said it causes him severe pain in his spine, right shoulder, pelvis, left leg, fingers, wrists, elbows, and rib cage. Grubb, who has been on disability from the Fernald plant since January of this year, said doctors told him he has 4 tumors in his right shoulder and more than 20 in his spine. He said he has no family history of cancer. Although he has no proof and the scientific evidence on the subject has been generally inconclusive, Grubb believes that his exposure to uranium, thorium, magnesium fluoride dust, and various nonradioactive hazardous materials while working at Fernald resulted in his current health problems.

Grubb worked at Fernald from 1955 to 1970 and from 1982 until earlier this year as a laborer, lift-truck operator, and truck driver. These jobs involved transporting uranium and green salt (the key compound in producing uranium metal) around Plant 5. As he moved these radioactive materials, Grubb recalled, dust was "flying everywhere." He said the vacuum used to clean up the spilled material "wasn't too good, so the whole plant was filled with uranium dust and magnesium fluoride dust."

On a number of occasions in the 1950's and 1960's, Grubb said, as magnesium fluoride was pumped into the plant as a fine dust, the pipes would blow open and dust would shoot 10 to 15 feet in the air. He would continue his normal duties of transporting 55-gallon drums, ingots, and derbies (a 300- to 400-pound round form of solidified uranium metal).



Westinghouse Materials Co. of Ohio

Empty 55-gallon drums sit ready to be filled with radioactive thorium that is being repackaged for long-term storage.

"Now when they have a blowout like that, they evacuate the whole building," said Grubb, who is considering filing a lawsuit against the Department of Energy (DOE) and the former contractor, NLO, Inc. "I was exposed more than any man in Plant 5. If something caught fire, I had to take it outside and put water on it. All the

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while, the dust and smoke were blowing in my face."

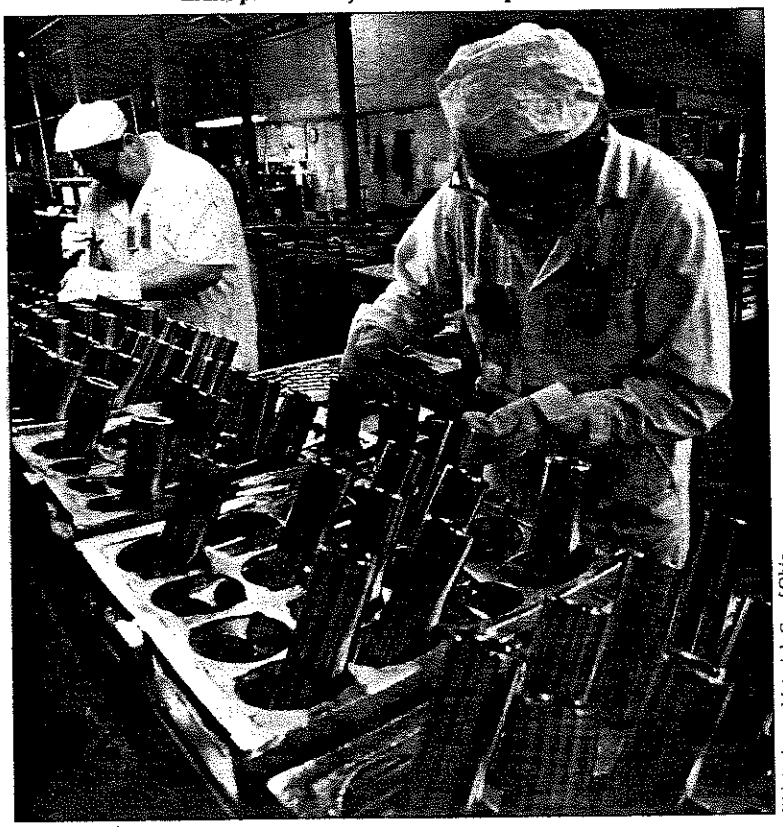
Grubb said he did this work because "we were believing those people when they told us there was no risk and that we were doing something for our country." He said workers were reluctant to complain about hazards for fear of being labeled "a bad security risk for the government," which could result in a worker losing his "Q" security clearance and his job. Workers were told to "produce, produce, produce," according to Grubb, as supervisors competed against each other to see who could turn out the most product.

History of Fernald

Construction on the 1,050-acre plant in rural Fernald (northwest of Cincinnati) started in 1951. It became fully operational in 1953. National Lead of Ohio (now known as NLO, Inc.), which was formed by parent company NL Industries specifically for the purpose of operating the facility, employed as many as 3,000 people at any one time during its 34-year tenure as the plant operator. The facility's complex production process consists of nine major plants, each designed to perform a key function in the manufacture of uranium metal products for use by other DOE facilities in the production of nuclear weapons.

Fernald, like other sites in the Nuclear Weapons Complex, operated in relative secrecy from its inception through the 1970's. In fact, some Fernald area residents contend that they were lied to or misled by government and contractor officials. The residents point to the name ("feed materials"), red-and-white checkerboards painted on towers, and the cows in front of the plant as indicators that plant operators were misleading people into thinking Fernald made cattle feed or dog chow. Other residents said they were told by plant officials that Fernald made lead shields.

Fernald's mission was to produce uranium fuel cores (the "feed materials") for use in nuclear reactors, which then make plutonium for nuclear weapons.



Westinghouse Materials Co. of Ohio

Workers, too, were unaware of some of the hazards, according to David Day, president of the Fernald Atomic Trades and Labor Council (FATLC), a coalition of 13 unions that represent Fernald workers. Day told a Senate committee hearing earlier this year, "We were not told we were working around materials like thorium and plutonium."

By the early 1980's, however, the veil of secrecy began to lift, and workers and citizens became less reluctant to speak out about what they perceived to be the safety and environmental hazards at Fernald. In December 1984, an accidental release of between 270 and 370 pounds of uranium oxide dust fueled their concerns. Fernald officials responded by increasing the size of the safety and health staff and implementing a public relations program. In addition, DOE has spent $356 million since 1985 to make safety and health improvements (including building new storage facilities and shipping and receiving areas) at the aging facility, according to Jim Reafsnyder, DOE site manager.

On January 1, 1986, Westinghouse Materials Co. of Ohio (WMCO) replaced NLO as the contractor and set out to increase production while also planning to take a long look at safety and environmental concerns.

WMCO President Bruce Boswell told *Occupational Hazards* production never got to the point the company had hoped for. Last year, the plant was closed for 2 months because of a strike over working conditions and benefits. When the strike was settled, the plant returned to production for a short time, but was shut down again in July of this year. Now the responsibilities of the 1,200 Westinghouse employees (as well as various subcontractors) have been shifted to cleanup and waste management.

"Times just passed this facility by," Boswell told *Occupational Hazards*. "It became very clear to me that I ought to be putting as much resources as possible into cleanup. These are big, long-term problems." Boswell told *Occupational Hazards* on August 24 that he was hoping to restart production sometime in September, while cleanup work was still going on. However, the next day, a DOE "tiger team" gave Boswell its report (which has not been made public) on safety and environmental conditions at Fernald, and a restart was then "postponed indefinitely," according to Westinghouse spokesman Pete Kelley. Production may never resume at Fernald, Kelley said, although DOE has indicated in the past that it wants the uranium on site reprocessed before shutting down the facility.

"The future of Fernald is being reevaluated," DOE's Reafsynder said. "Regardless, the plans for this facility call for an extensive cleanup."

Fernald, considered to be one of the most hazardous sites in DOE's Nuclear Weapons Complex, is one of four sites that may be phased out over the next 20 years, possibly as early as 1992. According to some estimates, it will cost $5 billion and take at least 10 years to clean up Fernald, which EPA recently added to its Superfund list.

Problems

Floyd Grubb tells of dumping more than 600,000 pounds of uranium (about 400 ingots each weighing 1,500 pounds) into a waste pit and leaving no documentation behind. He said there were countless such "unofficial" incidents of waste disposal that went on at Fernald, particularly in the 1950's and 1960's.

"Official" figures show that there are more than 60,000 barrels (some leaking) of radioactive, hazardous, and mixed waste, and approximately 475,000 tons of waste in six pits located on the site. The two K-65 silos at Fernald contain approximately 9,700 tons of waste from the Manhattan Project, the World War II program that produced the first atomic bombs.

"I don't think Fernald was intended to be used as a waste storage facility," said Lisa Crawford, whose group, Fernald Residents for Environmental Safety and Health (FRESH), is part of a class-action lawsuit that alleges DOE (and its agency predecessors) and NLO knowingly violated environmental laws and lied about practices at Fernald.

According to a report prepared for FRESH by the Institute for Energy and Environmental Research (IEER), the Fernald plant discharged as much as 1,400 metric tons of uranium from 1951 to 1985. That differs markedly from the government's estimate that the plant emitted between 179 and 250 metric tons of uranium during the same 34-year period. In addition, the IEER report said working conditions were "alarmingly poor." The report cites one example in which "a bucket was placed under a very leaky piece of equipment to gather radioactive dust."

According to our sources, many of the safety and environmental problems at Fernald can be traced to the fact that very little money was put into maintenance and renovation — $20 million over one 15-year period, for example.

"There's no doubt things could have been done better," said Bob Weidner, formerly director of the health and safety division of NLO. "There were people working for NLO who had the answers. NLO saw problems down through the years, made recommendations to alleviate the problems, and, in many cases, nothing was done about [them]." Sometimes, Weidner said, that was the result of an emphasis on productivity. He also pointed to a desire on the part of previous administrations and some members of Congress to save money on engineering controls so it could then be used for other things, such as research and development.

Westinghouse Materials Co. of Ohio

The HEPA dust collector system in Plant 9 — one of many new environmental controls at Fernald.

One labor representative at Fernald concurred with Weidner's comments and said NLO was being used by the Energy Department as "a scapegoat" for all of the problems at Fernald.

Weidner, now manager of NLO, said that production cycles also contributed to safety and environmental problems. In times of slow production, he explained, there was talk that the plant would be closed, so no money was spent on renovation. At peak production times, there was no time for improvements.

But Weidner disputed the assertions of some past and present workers that problems were widespread. "It's mind-boggling to have people say there was no health and safety program," said Weidner, noting that the facility had received safety awards from various organizations, including the National Safety Council.

NLO remains under contract with the Department of Energy in what Weidner described as "a postoperations mode." The four remaining employees serve as a "litigation support group" for DOE during the current FRESH lawsuit and for other legal matters stemming from its operation of the FMPC.

Facing the future

While past practices at Fernald have been a major focus for citizens and former workers, current employees are concerned about the fu-

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ture, particularly with having more say in matters relating to health and safety. Safety remains "a never-ending battle," according to John Fitzgerald, a chemical worker.

As part of the settlement of last year's strike, workers got the right to refuse nonradiological work that they feel is hazardous to their health. Earlier this year, Westinghouse and the unions at Fernald agreed on a system of "split-sample" testing of employees for radiation exposure, although the intricacies of the plan have yet to be worked out.

Despite their health and safety concerns, say union officials, what employees want most of all is to continue working at Fernald. The union wants its members to do the bulk of the cleanup work, and many workers have expressed hope that the facility can eventually be returned to normal production.

"When hazards are known, people wear the safety equipment provided to them," Fitzgerald said. "The pay here ($25,000 and up) is better than most jobs in the area, and we've all been here long enough that the damage, if there is going to be any, has already been done."

Former worker Grubb (left), now in ailing health, spent 22 years "believing . . . there was no risk."

Westinghouse's Boswell (right): "Our initiative is to open the doors. The time for secrecy is over."

Even Jesse Abney, a chemical operator at Fernald for 8 years who has tested positive for elevated levels of plutonium in his system and a high body burden of uranium-235 in his lungs, said, "I believe that Fernald can continue to stay open...."

With production at a halt, workers are now concentrating on cleanup. Some of the production workers, for example, are undergoing 24 hours of RCRA-required training so they can participate in cleanup activities, which are already underway in a number of areas. For example, thousands of 55-gallon drums of hazardous materials which had been stored outside have been moved into warehouses. In addition, the aging thorium storage vessels on the site have been decontaminated, and the material has been transferred into drums. Westinghouse also continues to monitor ground water and the Great Miami River to determine the extent of contamination, Boswell said.

Citizen action

Community interest in the hazardous waste at Fernald has been translated into action — class action. At presstime, the lawsuit *In rae: Fernald*, filed on behalf of the 14,000 people who own property within a 5-mile radius of the Fernald site, remained in the U.S. District Court in Cincinnati.

In late August, Judge S. Arthur Spiegel had been expected to approve a $78 million settlement, which attorneys for DOE (which is defending itself and NLO) and the citizens had agreed was "fair, adequate, and reasonable."

The proposed settlement would provide for medical monitoring of residents, an independent epidemiological study, and reimbursement for decreased property value. The suit was not designed to cover any health problems allegedly related to Fernald because, FRESH's Crawford said, "We have no proof, only suspicions" that otherwise unexplainable illnesses are related to the operation of the facility over the years. Residents who think they can prove adverse health effects — they allege everything from cancer to aches and pains — would have the option to take action against DOE and NLO for those later.

However, a snag developed when the two sides could not agree on whether or not the settlement released DOE from any further responsibility for cleaning up contaminated residential and commercial property. The issue was raised by Ruetgers-Nease Chemical Co., which was concerned that it would be forced to clean up waste on its site, some of which, the company said, may well prove to have traveled through the air or water from Fernald.

At presstime, lawyers for both sides still believed the settlement could be approved.

Meanwhile, Westinghouse, which is not named in the lawsuit, has implemented an aggressive public relations program in hopes of allaying neighbors' fears. For example, the company held the first-ever open house at Fernald in September 1988, set up a speakers' bureau, and installed an emergency warning system.

"Our initiative is to open the doors," Westinghouse's Boswell said. "The time for secrecy is over." Although DOE officials oppose legislation that would transfer full responsibility for worker safety and health and environmental compliance to OSHA, NIOSH, and EPA, Boswell said he is personally in favor of it. "The days are past when any company or any organization can be self-regulating," he said.

Despite Westinghouse's efforts, public distrust lingers, according to FRESH's Crawford, whose family drank contaminated well water for 6 years before being warned by DOE. "The whole point is this community was deceived. We still don't believe some of the answers we get."□

Jim
Sally

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Cleaning up nuclear weapons sites

By Mary L. Walker

The legacy of crippled reactors and contaminated soil and groundwater at the government's nuclear weapons facilities has spawned a dangerously bad idea: The notion that nothing in the world can save these contaminated sites and that they should be designated "national sacrifice zones."

Though this expedient might be a source of satisfaction to some, it would have serious consequences. It would be a de facto substitute for effective environmental clean-up of the large amounts of toxic and radioactive wastes that pose significant environmental hazards of facilities like Hanford, Rocky Flats, Savannah River and Fernald, Ohio. And it would be an admission that our government cannot meet even minimal environmental standards.

Placing warning signs to keep people off contaminated weapons sites for hundreds of years is certainly not a permanent remedy. An easy fix is unlikely to offer itself to a prudent society that cares about environmental quality and seeks to correct such major abuses of the past.

The root causes of today's problems can be traced back to World War II and the Manhattan Project and the country's efforts to create the atomic bomb. The goal of the Manhattan Project—production of nuclear defense materials—has continued through the past four decades, and until recently was the guiding principle of the nuclear weapons program.

Unfortunately, until just a few years ago, environmental protection was not a priority for the Department of Energy and its predecessor agencies. As a result, the government—unknowingly in some instances and carelessly in others—created contamination and allowed other problems to go unchecked for decades, avoiding costly measures to clean up contaminants and modernize equipment. Because of their unique mission, the managers of the weapons sites believed that their facilities were exempt from environmental statutes.

In the face of such neglect, the country's entire production program for nuclear weapons is now under fire from Congress, the states, Energy Department officials, the media and communities near the plants. The outcry is understandable.

What to do? Decisions made by Congress and the administration over the next few months will affect not only nuclear weapons production but also the environmental quality of the nation. Here are four suggestions:

First, the Energy Department should establish risk-based priorities for clean-up and corrective action in consultation with the Environmental Protection Agency, states and the public. Aside from sheer magnitude—millions of cubic feet of contaminated soil and millions of gallons of befouled groundwater at 17 plant sites in 12 states—the department faces the unique problem of chemical waste mixed with radioactive substances.

Second, it should develop a strategic plan for the future of the nuclear weapons complex that identifies and incorporates state-of-the-art environmental and safety features. Many of the present facilities for producing nuclear defense materials are old, and some will have to be rebuilt or replaced.

For example, a top priority should be to build a new production reactor using proven technology to meet the requirements of the 1990s and beyond. The new reactor technology needs to be carefully selected and should incorporate advanced safety features and improved waste treatment systems not present in the older plants.

Third, instead of trying to wring adequate funds for clean-up out of each year's budget for weapons production, a long-term spending mechanism should be provided to identify and set aside funds for clean-up in keeping with the priorities of the most urgent sites. The problems cannot be solved cheaply, and the federal government will have to commit greater resources than it has in the past. As a nation, we have continued to benefit from the security the weapons program provides; as a nation, we must now address the resulting environmental issues.

Fourth, the Energy Department weapons program should be subject to strong independent oversight and regulation with respect to health, safety and environmental effects. It is important that there be meaningful participation in the environmental and safety compliance effort by the EPA, the Occupational Safety and Health Administration and the states. And like virtually all major industries, the Energy Department should maintain its own internal watchdog organization that reports to top management on environmental and safety issues.

I know from my experience at the Department of Energy that the challenge ahead is complicated. Congress, EPA and the states must be flexible enough to recognize that each weapons plant site is unique, that each may require its own remedy and that some areas, though "cleaned up," may never be restored to pre-industrial purity.

While new technologies have been developed to clean up radioactive and toxic wastes, those who insist that contamination can be eliminated altogether fail to grasp the dimensions of the country's waste problem. In some cases, high-voltage devices can be inserted into the Earth to melt blocks of contaminated soil. But in other situations removal of contaminated soil can only be accomplished with remote-controlled earth-moving machinery. And in still others, technology is not yet available to decontaminate groundwater.

Because of the scope of the problems at U.S. nuclear weapons plants, rebuilding the infrastructure of the facilities and cleaning up the sites will not be achieved quickly or easily. Most important, they will require an unshakable commitment to the protection of public health and safety and our environment. If we fail to assure the necessary funds, national sacrifice zones may become a reality. And they will be our legacy to future generations.

Mary L. Walker was assistant secretary for environment, safety and health at the U.S. Department of Energy from 1985 to 1988. She now practices law in California.